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G03B 15/06 (2006.01)
G06F 1/16 (2006.01)
H04M 1/02 (2006.01)

Primary Examiner — Anabel Ton

(52) **U.S. Cl.**
CPC **G06F 1/1656** (2013.01); **H04M 1/026**
(2013.01); **G06F 1/1626** (2013.01)

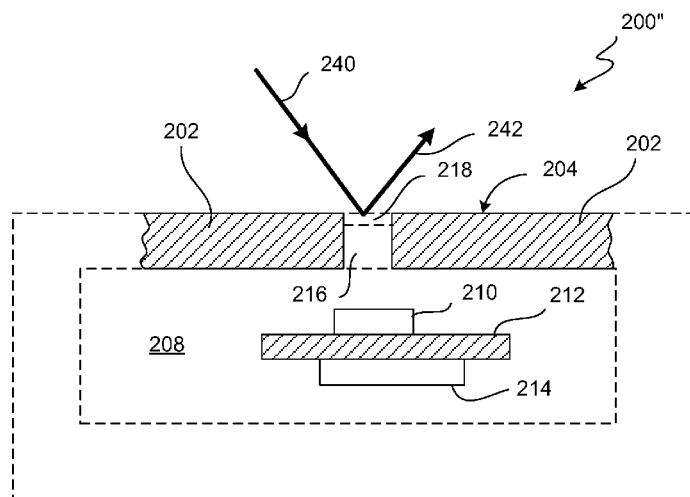
(57) **ABSTRACT**

(58) **Field of Classification Search**
CPC B65D 7/36; B65D 1/165; B65D 1/265;
B65D 1/40; B65D 1/38; B65D 2543/00296;
B29C 49/04; H04M 1/22; H04M 1/026;
H04M 1/0264; H04M 1/0266; H04M 1/0268
USPC 174/50, 17.05, 50.51, 559; 220/675,
220/676, 669, 662

Techniques and apparatus for providing one or more holes in a housing for an electronic device are disclosed. The one or more holes in the housing can be used to facilitate visual indicators. A light source can be controlled to provide light into a hole and thus emit light from the hole. When the light source is not providing light to the hole, the hole can be visually disguised (e.g., camouflaged) so it blends with the surrounding portions of the housing. The electronic device can, for example, be a small electronic device, such as a portable or handheld electronic device.

See application file for complete search history.

24 Claims, 8 Drawing Sheets



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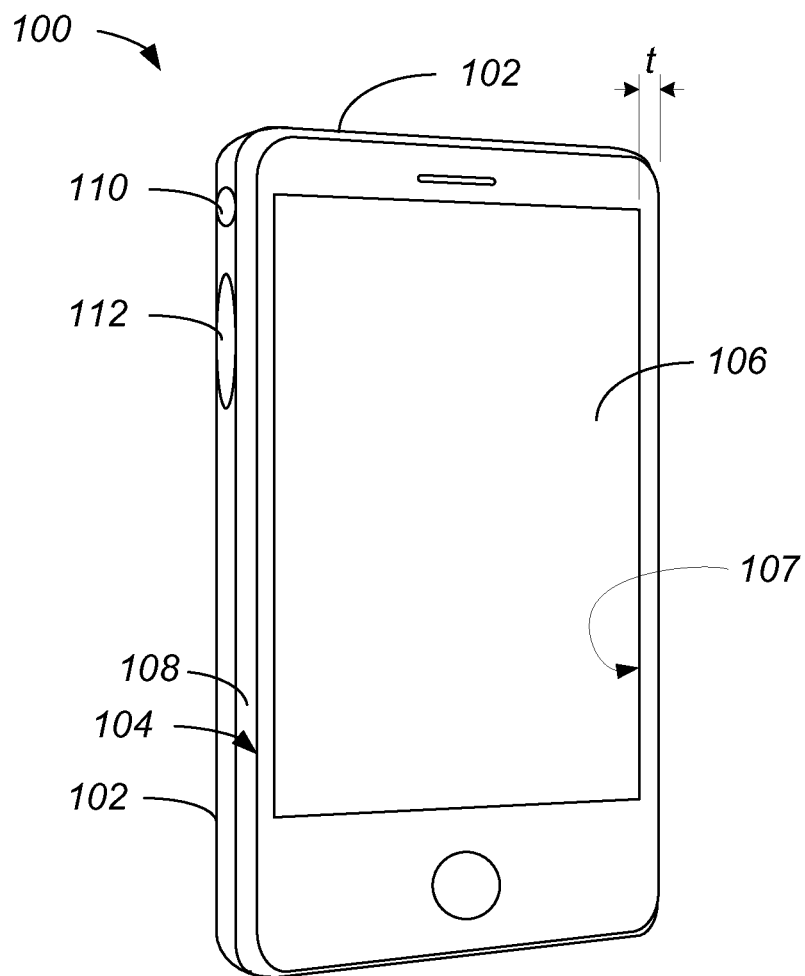
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**FIG. 1**

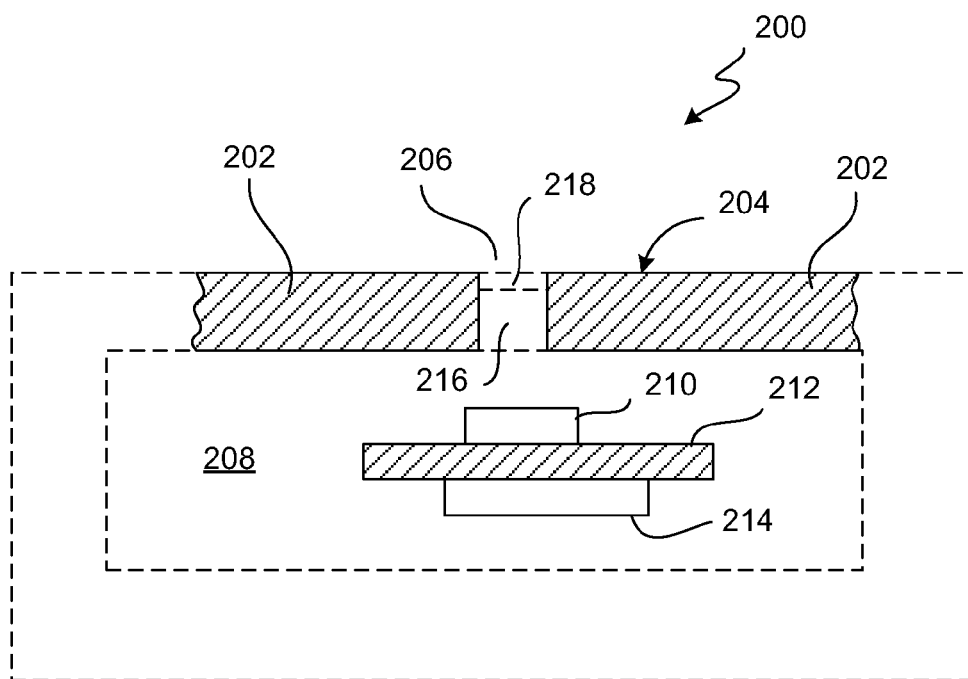


FIG. 2A

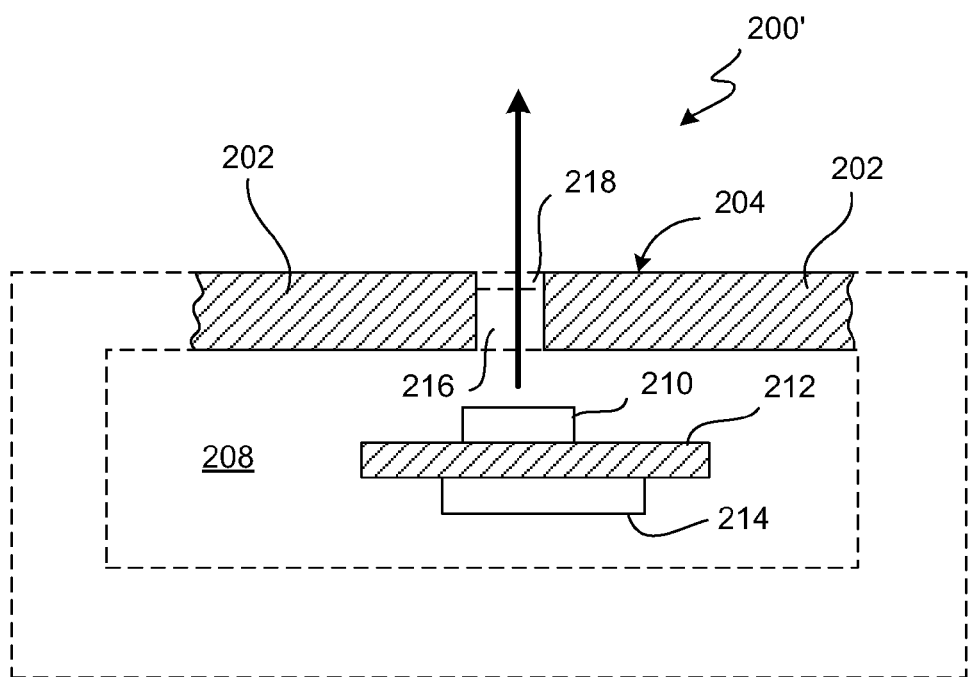


FIG. 2B

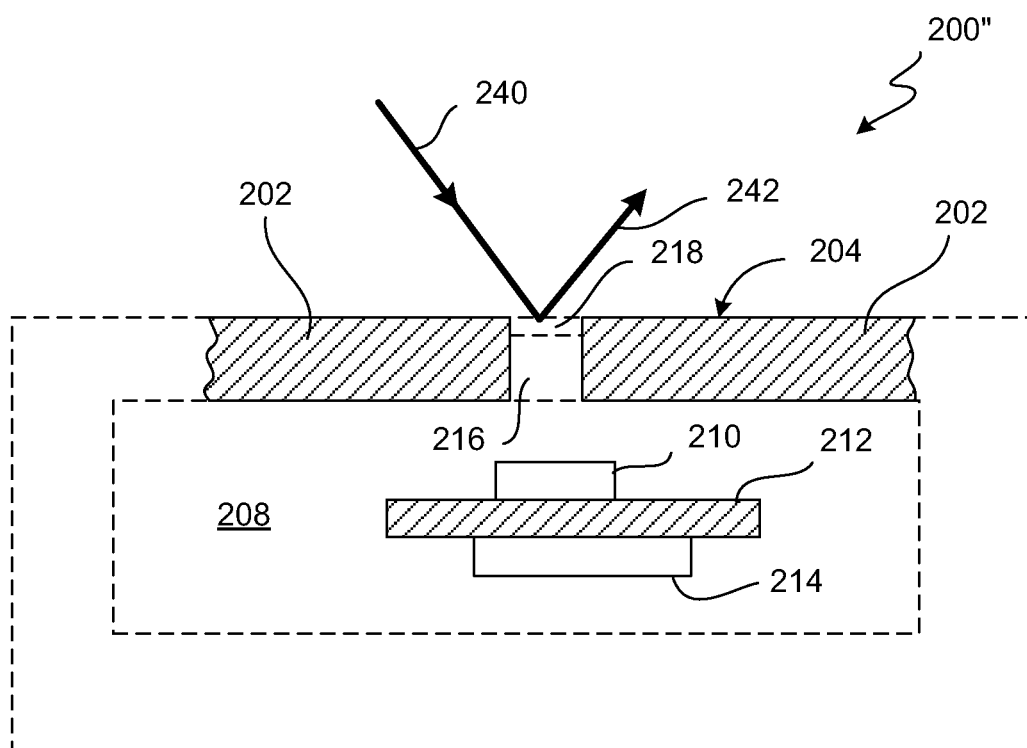
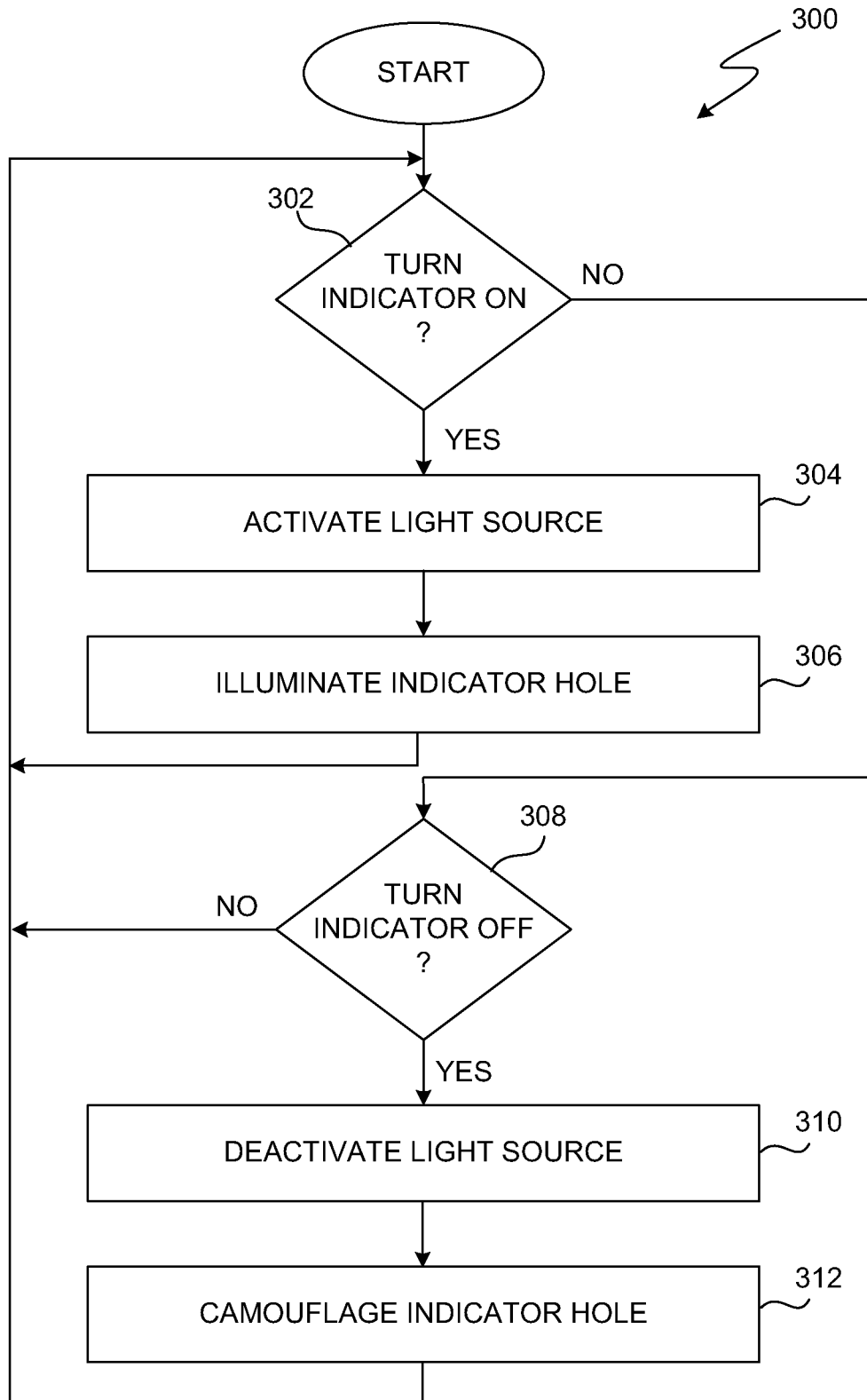
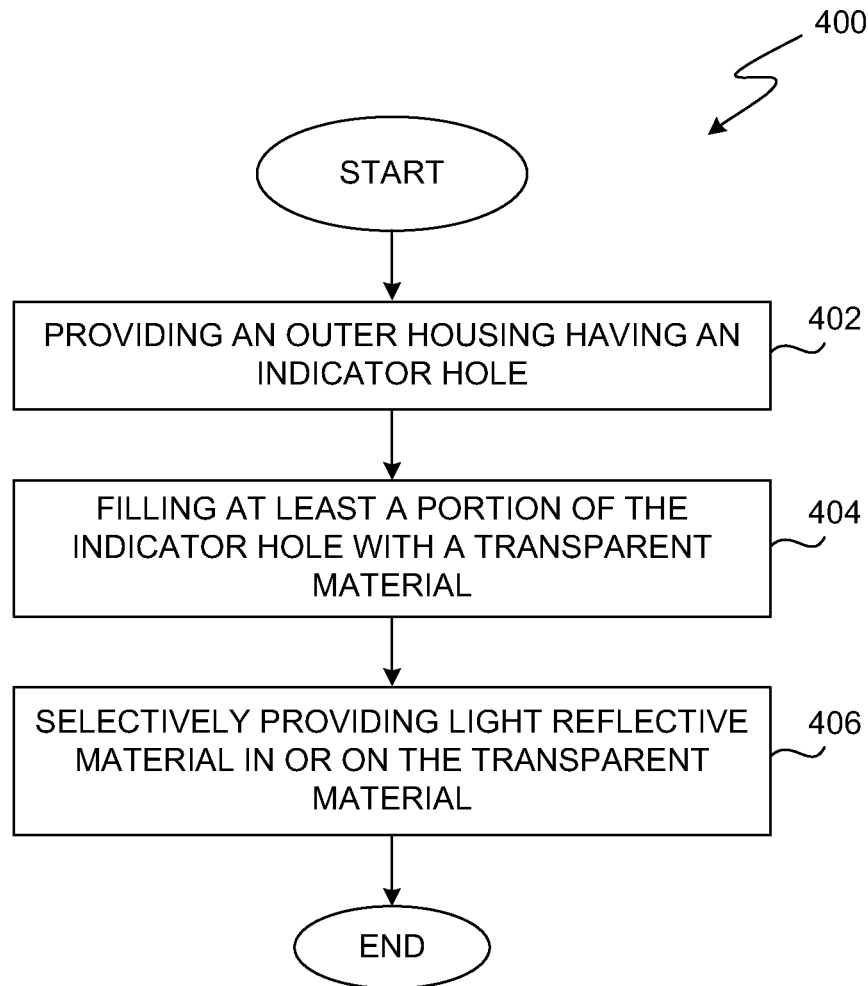


FIG. 2C

**FIG. 3**

**FIG. 4**

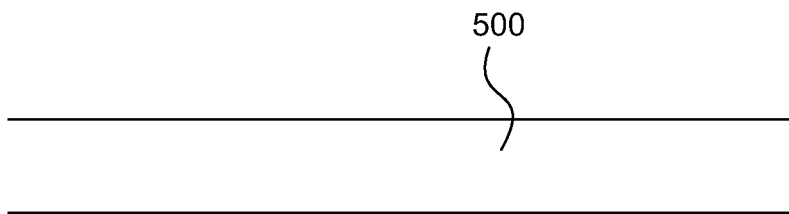


FIG. 5A

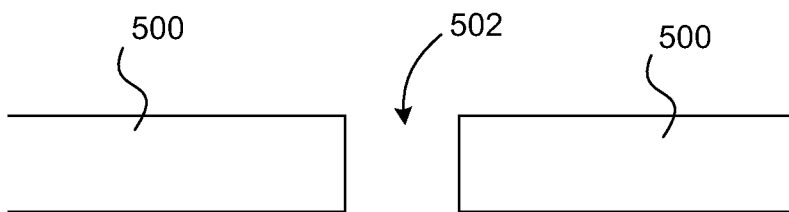


FIG. 5B

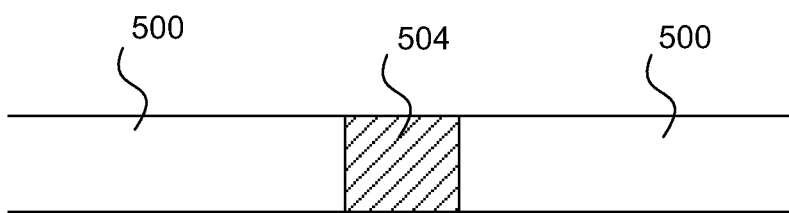


FIG. 5C

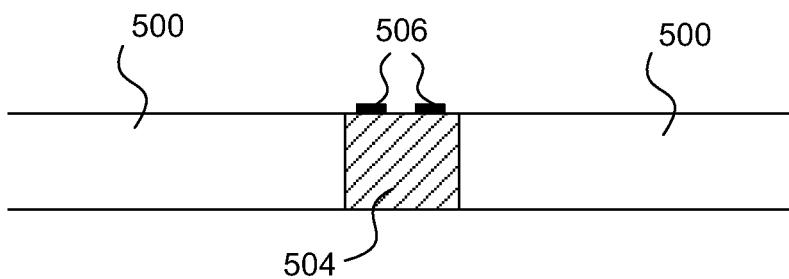


FIG. 5D

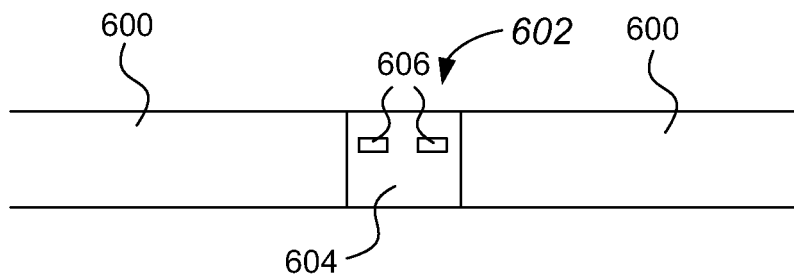


FIG. 6A

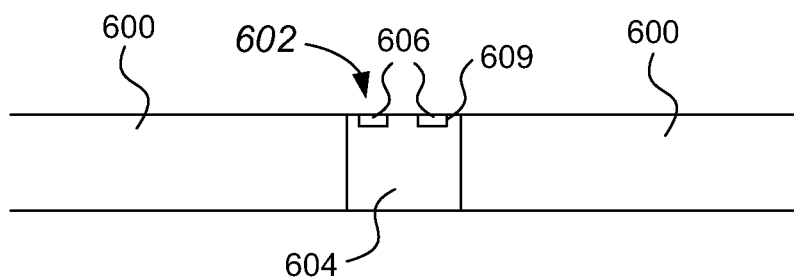


FIG. 6B

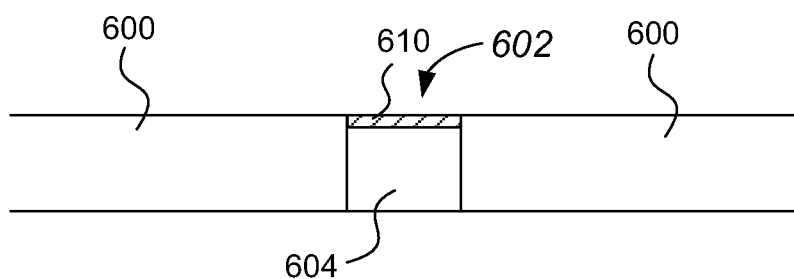


FIG. 6C

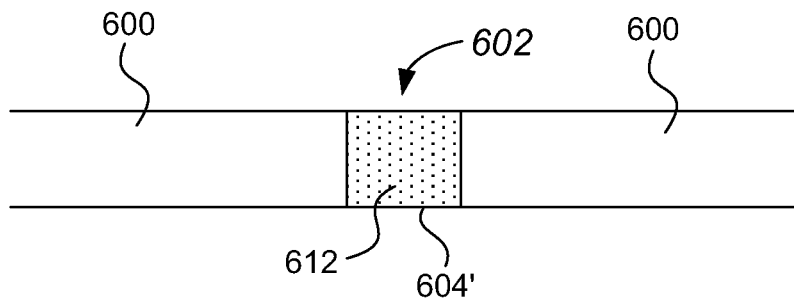


FIG. 6D

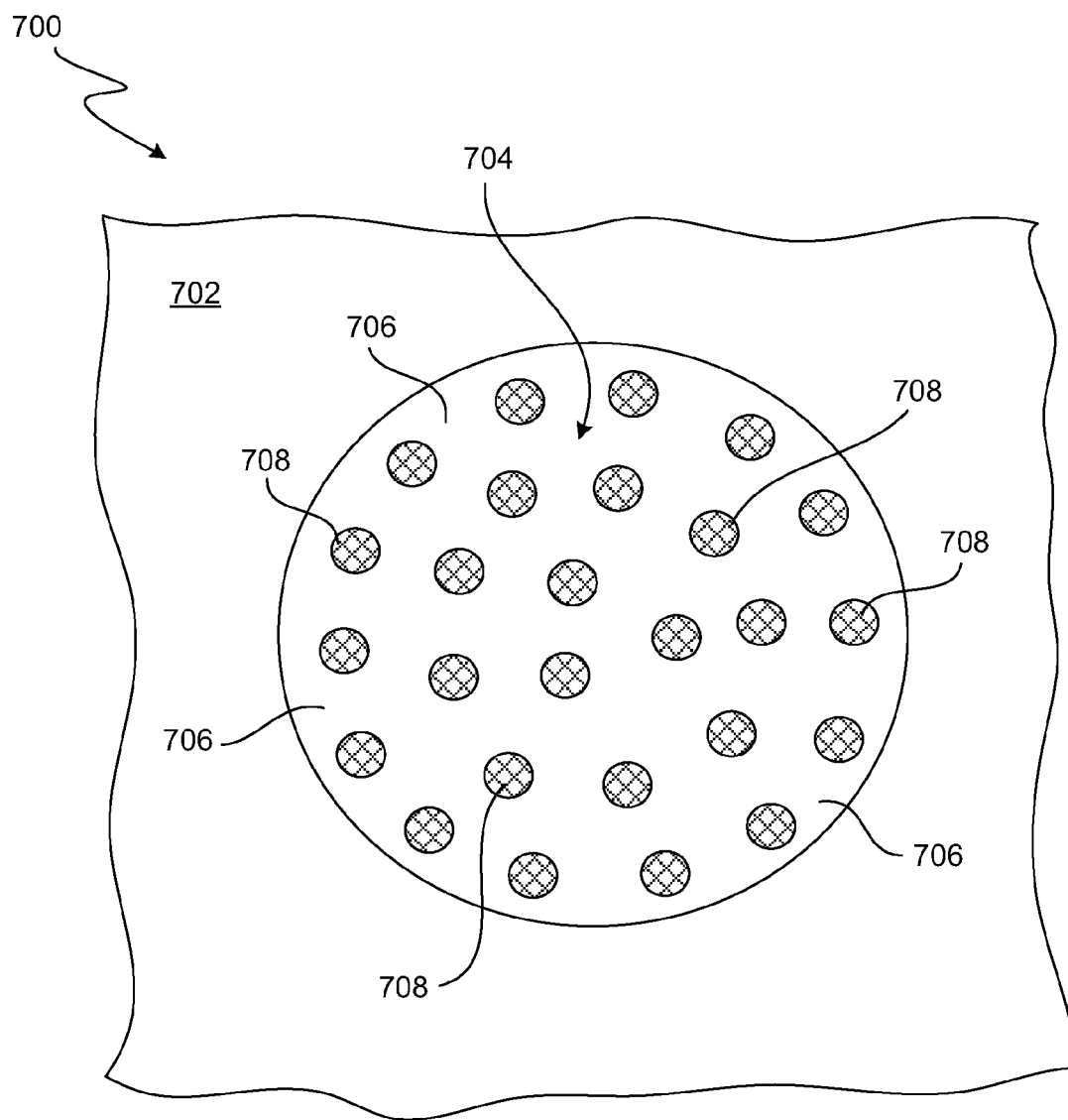


FIG. 7

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CAMOUFLAGED OPENINGS IN ELECTRONIC DEVICE HOUSINGS

BACKGROUND

Conventionally, a portable electronic device has a housing that encases various electrical components of the portable electronic device. Often, the portable electronic device has one or more indicator lights. For example, the housing can include a small hole through which light can be expelled when an indicator light is to be provided. The indicator lights can be used for various purposes, such as for a status indication or an alert to be provided to a user of the portable electronic device. Examples of common indicator lights include a battery charging indicator light, a power-on indicator light, etc. Unfortunately, however, the holes in the housing for the indicator lights are visible and cosmetically unappealing when the indicator lights are not use.

SUMMARY

Techniques and apparatus for providing one or more holes in a housing for an electronic device. The one or more holes in the housing can be used to facilitate visual indicators. A light source can be controlled to provide light into a hole and thus emit light from the hole. When the light source is not providing light to the hole, the hole can be visually disguised (e.g., camouflaged) so it blends with the surrounding portions of the housing. The electronic device can, for example, be a small electronic device, such as a portable or handheld electronic device.

Embodiments of the invention can be implemented in numerous ways, including as a method, system, device, or apparatus. Several embodiments of the invention are discussed below.

As an electronic device, one embodiment can, for example, include at least: a housing having an outer exposed surface with at least one hole extending therethrough, the housing at least partially covering an inner region; a light source provided within the inner region and proximate to the at least one hole; a light transmissive filler provided in the hole; and light reflective material selectively provided in or on the light transmissive filler.

As a method for camouflaging an indicator hole in an outer housing for an electronic device, one embodiment can, for example, include at least: filling at least a portion of the indicator hole with a transparent material to seal the indicator hole; and selectively providing light reflective material in or on the transparent material provided in the indicator hole.

As a consumer electronic device, one embodiment can, for example, include at least: a housing having an outer exposed surface with at least one hole extending therethrough, the housing at least partially covering an inner region; a light source provided within the inner region and proximate to the at least one hole; a controller provided within the inner region and operatively coupled to the light source to control when the light source emits light; a polymer filler provided in the hole; and ink selectively provided in or on the polymer filler.

Other aspects and advantages of embodiment of the invention will become apparent from the following detailed description taken in conjunction with the accompanying drawings which illustrate, by way of example, the principles of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be readily understood by the following detailed description in conjunction with the accompanying

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drawings, wherein like reference numerals designate like structural elements, and in which:

FIG. 1 is a perspective diagram of a handheld electronic device according to one embodiment.

FIG. 2A is a cross-sectional diagram of a portion of an electronic device according to one embodiment.

FIG. 2B is a cross-sectional diagram of a portion of an electronic device according to one embodiment.

FIG. 2C is a cross-sectional diagram of a portion of an electronic device according to one embodiment.

FIG. 3 is a housing indication process according to one embodiment.

FIG. 4 is a flow diagram of a discreet hole formation process according to one embodiment.

FIGS. 5A-5D illustrate cross-sectional diagrams of a portion of a housing being modified to form an indicator hole according to one embodiment.

FIGS. 6A-6D illustrate cross-sectional diagrams of a portion of a housing having light reflective characteristics being implemented at an indicator hole for an indicator according to several different embodiments.

FIG. 7 illustrates a top view of a portion of a housing according to one embodiment.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

Techniques and apparatus for providing one or more holes in a housing for an electronic device. The one or more holes in the housing can be used to facilitate visual indicators. A light source can be controlled to provide light into a hole and thus emit light from the hole. When the light source is not providing light to the hole, the hole can be visually disguised (e.g., camouflaged) so it blends with the surrounding portions of the housing. The electronic device can, for example, be a small electronic device, such as a portable or handheld electronic device.

The techniques and methods can be used for electronic devices which have a housing that contains one or more electrical components. These electronic devices can also be referred to as consumer electronic devices since they are for user by a consumer. In any event, the electronic devices are relatively small electronic devices, such as electronic devices which have a relatively small form factor (e.g., portable digital media players, mobile telephones (smart phones), remote controllers, connectors, adapters (power adapters)), or electronic devices which have a relatively larger form factor (e.g., portable computers, tablet computers, displays, monitors, televisions, etc.).

Embodiments are discussed below with reference to FIGS. 1-7. However, those skilled in the art will readily appreciate that the detailed description given herein with respect to these figures is for explanatory purposes as the invention extends beyond these limited embodiments.

The following detailed description is illustrative only, and is not intended to be in any way limiting. Other embodiments will readily suggest themselves to skilled persons having the benefit of this disclosure. Reference will now be made in detail to implementations as illustrated in the accompanying drawings. The same reference indicators will generally be used throughout the drawings and the following detailed description to refer to the same or like parts. It should be appreciated that the drawings are generally not drawn to scale, and at least some features of the drawings have been exaggerated for ease of illustration.

FIG. 1 is a perspective diagram of a handheld electronic device 100 according to one embodiment. The handheld

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electronic device **100** may include a housing **102** that is arranged to at least partially surround the periphery of the handheld electronic device **100** to form some or all of the outer-most side, top and bottom surfaces of the handheld electronic device **100**. The handheld electronic device **100** also includes a cover piece **104** that is arranged to be substantially coupled to housing **102** to effectively enclose an inner volume of the handheld electronic device **100**. The cover piece **104** may include a glass member **106**, e.g., cover glass, provided over a display of the handheld electronic device **100**. In one embodiment, the cover piece **104** can include a protective frame **108** in which glass member **106** is held. The glass member **106** can serve as the top surface of the housing **102**. A display region **107** of the glass member **106** is that portion of the glass member **106** that corresponds to the display (e.g., active display region).

The housing **102** may have any suitable shape, including, for example, one or more elements that may be combined to form a rectangular structure. The housing **102** may at least partially enclose an inner volume in which electronic device components, including a light source, may be assembled and retained. The shape of housing **102** may substantially define boundaries of the inner volume, and may be determined based upon the size and type of components placed within the inner volume.

The housing **102** may have any suitable size, and the size may be determined based on any suitable criteria. Suitable criteria may include, but are not limited to including, aesthetics or industrial design, structural considerations, components required for a desired functionality, and/or product design. The housing **102** may have any suitable cross-section, including for example a variable cross-section or a constant cross-section. In some embodiments, the cross-section may be selected based on desired structural properties for housing **102**. For example, the cross-section of housing **102** may be substantially rectangular, such that the height of housing **102** is substantially larger than the width of housing **102**. Such a cross-sectional shape may provide structural stiffness in compression and tension, as well as in bending. In some embodiments, the dimensions of housing **102** cross-section may be determined relative to the dimensions of the components contained by housing **102**.

In some embodiments, housing **102** may include features **110**, **112**. The features **110**, **112** may generally include one or more openings, knobs, extensions, flanges, chamfers, or other features for receiving components or elements of the device. The features **110**, **112** of the housing **102** extend from any surface of housing **102**, including for example from internal surfaces (e.g., to retain internal components or component layers) or from external surfaces. In particular, the housing **102** may include a slot or opening (not shown) for receiving a card or tray within the handheld electronic device **100**. The housing **102** may also include a connector opening (not shown), e.g., for a 30-pin connector, through which a connector may engage one or more conductive pins of the handheld electronic device **100**. Other features **110**, **112** included on the housing **102** may include, but are not limited to, an opening for providing audio to a user, an opening for receiving audio from a user, an opening for a connector (e.g., audio connector or power supply connector), and/or features for retaining and enabling a button such as a volume control or silencing switch.

The housing **102** also include an indicator hole **714**. In this embodiment, the indicator hole **714** is provided at a side of the housing **102**. However, in other embodiment, the indicator hole could be placed at any portion of the housing **102**. The indicator hole **714** is used to provide a visual

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indicator to a user of the handheld electronic device **100** (or other person). The visual indicator can indicate a status or alert. For example, the visual indicator can indicate battery charging, powered-on, accessing memory, transmitting data, electrical connection, etc. Alternatively, the visual indicator can provide a cosmetic effect for the housing **102**.

FIG. 2A is a cross-sectional diagram of a portion of an electronic device **200** according to one embodiment. The electronic device **200** includes a housing member **202** that represents a portion of a housing for the electronic device **200** and provides an outer exposed surface **204**. The outer exposed surface **204** of the housing for the electronic device **200** is visible to a user of the electronic device. The housing member **202** includes a hole **206** that extends through the width of the housing member **202**.

In addition, the housing for the electronic device **200** includes an inner region **208** where one or more electrical components can be provided to support the functionality of the electronic device. In this embodiment, a light source **210** can be provided within the inner region **208**. The light source **210** can be mounted on a substrate **212**. The light source **210** can, for example, be implemented as a light emitting diode (LED). The substrate **212** can be implemented as a printed circuit board. Further still, to control the light source **210**, a controller **214** can also be mounted on the substrate **212** and electrically coupled to the light source **210**.

During operation of the electronic device, the controller **214** can control when the light source **210** is to produce light that will pass through the hole **206** in the housing member **202** so that a visible light indication is provided at the outer exposed surface **204** of the housing member **202**. Additionally, the hole **206** in the housing member **202** can be partially or completely filled with a light transmissive filler **216**. The light transmissive filler **216** is substantially transparent to light so that the light produced by the light source **210** can pass through the light transmissive filler **216**. The light transmissive filler **216** serves to seal the hole **206** so that unwanted dirt, dust, or other debris can not enter or clog the hole **206**.

Further still, a light reflective material **218** is provided on or in the light transmissive filler **216**. The light reflective material **218** is provided in a manner such that it does not dramatically impede the light produced by the light source **210**, yet is able to provide reflection of external light that impinges on the light reflective material **218**. As a result, the light reflective material **218** allows the hole **206** in the housing member **202** to be disguised or camouflaged while the light indication is not being provided.

FIG. 2B is a cross-sectional diagram of a portion of an electronic device **200'** according to one embodiment. The electronic device **200'** illustrated in FIG. 2B is the same structure as the electronic device **200** illustrated in FIG. 2A. Specifically, the electronic device **200'** depicted in FIG. 2B illustrates an illuminated state in which light **220** produced by the light source **210** is projected through the hole **206**. The light **220** transmits through the light transmissive filler **216** without being blocked by the light reflective material **218**. While some of the light generated by the light source **210** could be blocked by the light reflective material **218**, a substantial portion of the generated light does project out from the hole **206** in the housing for the electronic device **200'**.

FIG. 2C is a cross-sectional diagram of a portion of an electronic device **200''** according to one embodiment. The electronic device **200''** illustrated in FIG. 2C is the same structure as the electronic device **200** illustrated in FIG. 2A. Specifically, the electronic device **200''** depicted in FIG. 2C

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illustrates an non-illuminated state in which a portion of incoming external ambient light **240** is reflected by the light reflective material **218** to produce reflected ambient light **242**. The reflected ambient light **242** can serve that provide a visual impression that the hole **206** is not present. In other words, when the light source **210** is inactive, the hole **206** is disguised whereby the user does not visually perceive the existence of the hole **206**.

FIG. 3 is a housing indication process **300** according to one embodiment. The housing indication process **300** can be performed by an electronic device, such as the portable electronic device **100** illustrated in FIG. 1 or the electronic device **200** illustrated in FIG. 2A.

The housing indication process **300** can begin with a decision **302** that determines whether an indicator is to be turned on. Here, the indicator can be associated with the electronic device and represent a status, alert, or other feedback to a user of the electronic device. In one embodiment, the indicator is provided by a combination of a light source (e.g., LED) and an opening in a housing for the electronic device. The opening can be referred to a hole or, more specifically, an indicator hole. When the decision **302** determines that the indicator is to be turned on, the light source can be activated **304**. Typically, the light source is contained within the housing. Once the light source is activated **304**, the indicator hole in the housing can be illuminated **306**. In particular, the light produced by the light source (when activated) can exit the housing through the indicator hole and thereby provide a visual alert the user of the electronic device of a particular condition.

On the other hand, when the decision **302** determines that the indicator is not to be turned on, a decision **308** can determine whether the indicator is to be turned off. When the decision **308** determines that the indicator should be turned off, the light source can be deactivated **310**. Consequently, with the light source deactivated **310**, the indicator hole in the housing becomes camouflaged **312**. As a result, although the indicator hole is physically present in the housing of the electronic device, the indicator hole is not visible or at least not clearly visible to a person while the light source is deactivated **310**.

Following the block **306**, the decision **308** (when the indicator is not be turned off), or the block **312**, the housing indication process **300** can return to repeat the decision **302** and subsequent blocks so that the indicator can be continuously operated to illuminate if active or to camouflage if inactive.

FIG. 4 is a flow diagram of a discreet hole formation process **400** according to one embodiment. The discreet hole formation process **400** can be used to form one or more indicator holes in a housing for a consumer electronic device in a manner that makes the indicator hole discreet, that is, substantially imperceptible to a user's eye while inactivated.

The discreet hole formation process **400** can provide **402** an outer housing having an indicator hole. Here, the outer housing can refer to the exposed outer portion of the housing for the consumer electronic device, such as a portable electronic device. The outer housing can include at least one indicator hole that is utilized to alert a user of one or more conditions associated with the consumer electronic device.

Next, at least a portion of the indicator hole can be filled **404** with a transparent material. The transparent material does not have to be completely transparent but is generally clear or substantially transparent. For example, a polymer can be used as the transparent material. In one specific example, the polymer can pertain to a curable adhesive that is substantially transparent at least when cured.

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After the at least a portion of the indicator hole has been filled **404** with the transparent material, light reflective material can be selectively provided **406** in or on the transparent material that is provided within the indicator hole. The light reflective material can pertain to ink (including paint) that can be substantially more reflective to light than the transparent material. By selectively providing the light reflective material, only a portion of the outer exposed surface area of the transparent material provided in the indicator hole is covered or includes the light reflective material. After the light reflective material has been selectively provided **406**, the discreet hole formation process **400** can end.

FIGS. 5A-5D illustrate cross-sectional diagrams of a portion of a housing being modified to form an indicator hole according to one embodiment.

FIG. 5A illustrates a housing member **500** being provided. The housing member **500** represents a portion of the housing for an electronic device. Typically, in the case of portable electronic device, the housing member is relatively thin, such as less than 5 mm thick or, more particularly, between 0.5-2 mm thick. The housing member **500** can be formed of an material suitable for a housing. Examples of suitable materials include metal (e.g., aluminum) or polymers (e.g., polycarbonate).

FIG. 5B illustrates the housing member **500** being processed to form a hole **502** through the housing member **500**. The hole **502** is also relatively small, such as less than 3 mm diameter or, more particularly, about 1 mm diameter. The hole **502** can be formed by a laser or by drilling.

FIG. 5C illustrates the housing member **500** being processed to fill the hole **502** with a transparent material **504**. The transparent material **504** can be a polymer that is in a liquid or gel form that can be inserted into the hole **502** and then solidified or cured. For example, the transparent material **504** can be a curable adhesive (e.g., UV curable adhesive) that can be inserted into the hole **502** and then cured, whereby when cured the adhesive is substantially transparent.

FIG. 5D illustrates the housing member **500** being further processed to apply light reflective material **506** to select portions on the outer surface of the transparent material **504**. As one example, the light reflective material **506** can be an ink that is printed, sprayed or otherwise provided on the transparent material **504**. As another example, the light reflective material **506** can be a metal that can be deposited (e.g., physical vapor deposition) on the transparent material **504**.

FIGS. 6A-6D illustrate cross-sectional diagrams of a portion of a housing having light reflective characteristics being implemented at an indicator hole for an indicator according to several different embodiments.

FIG. 6A illustrates a housing member **600** having a hole **602** extending through the depth of the housing member **600**. Within the hole **602** is a transparent material **604** that serves to fill or seal the hole **602**. Additionally, to provide the light reflection needed to disguise (or camouflage) the hole **602** when not in use, light reflective material **606** can be provided at selective portions within the transparent material **604**.

FIG. 6B illustrates the housing member **600** having the hole **602** extending through the depth of the housing member **600**. Within the hole **602** is a transparent material **604** that serves to fill or seal the hole **602**. Additionally, to provide the light reflection needed to disguise (or camouflage) the hole **602** when not in use, light reflective material **608** can be provided at selective portions within recesses

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609 provided on the surface of the transparent material 604. For example, the recesses 609 can be etched, laser formed, cut, or molded. The recesses 609 provide a tiny reservoirs into which the light reflection material 808 (e.g., ink) can be placed.

FIG. 6C illustrates the housing member 600 having the hole 602 extending through the depth of the housing member 600. Within the hole 602 is a transparent material 604 that serves to fill or seal the hole 602. Additionally, to provide the light reflection needed to disguise (or camouflage) the hole 602 when not in use, light reflective material 610 can be provided as a layer of material provided over the transparent material 604. The layer of material 610 is partially light reflective and partially light transmissive so that some incident external light can be reflected so as to disguise the hole 602 when the indicator is not in use, while not overly impeding light from emitting from the hole 602 when the indicator is in use.

FIG. 6D illustrates the housing member 600 having the hole 602 extending through the depth of the housing member 600. Within the hole 602 is a semi-transparent material 604' that serves to fill or seal the hole 602. However, in this embodiment, the semi-transparent material 604' includes light reflection material 612 dispersed therein. The light reflection material 612 serves to provided the light reflection needed to disguise (or camouflage) the hole 602 when not in use.

FIG. 7 illustrates a top view of a portion of a housing 700 according to one embodiment. The housing 700 includes a housing surface 702 that includes a hole 704. The hole 704 is filled with a filler 706. The filler 706 is substantially transparent so that light can pass therethrough without substantial loss. Additionally, reflective elements 708 are provided on or in the filler 706. The reflective elements 708 serve to reflect external incident light so that the hole 704 appears to a person to no be present. In other words, the reflective elements 708 disguise (or camouflage) the hole 704. The number, size, shape and spacing of the reflective elements 708 can vary widely with implementation. Through use of inks in one or more colors and in one or more layers, there is a great deal of flexibility for the visual appearance of the hole 704 to appear any color. Hence, the visual appearance of the hole 704 (when the light indication is inactive) can take on any desired color.

The techniques and apparatus describe herein may be applied to housings used by any of a variety of electronic devices including but not limited handheld electronic devices, portable electronic devices and substantially stationary electronic devices. Examples of these include any known consumer electronic device that includes a display. By way of example, and not by way of limitation, the electronic device may correspond to media players, mobile phones (e.g., cellular phones, smart phones), PDAs, remote controls, netbooks, notebooks, tablet PCs, gaming controllers, monitors, all in one computers and the like.

The various aspects, features, embodiments or implementations of the invention described above can be used alone or in various combinations.

Although only a few embodiments of the invention have been described, it should be understood that the invention may be embodied in many other specific forms without departing from the spirit or the scope of the present invention. By way of example, the steps associated with the methods of the invention may vary widely. Steps may be added, removed, altered, combined, and reordered without departing from the spirit of the scope of the invention. Similarly, while operations are depicted in the drawings in

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a particular order, this should not be understood as requiring that such operations be performed in the particular order shown or in sequential order, or that all illustrated operations be performed, to achieve desirable results.

While this specification contains many specifics, these should not be construed as limitations on the scope of the disclosure or of what may be claimed, but rather as descriptions of features specific to particular embodiment of the disclosure. Certain features that are described in the context of separate embodiments can also be implemented in combination. Conversely, various features that are described in the context of a single embodiment can also be implemented in multiple embodiments separately or in any suitable subcombination. Moreover, although features may be described above as acting in certain combinations, one or more features from a claimed combination can in some cases be excised from the combination, and the claimed combination may be directed to a subcombination or variation of a subcombination.

While this invention has been described in terms of several embodiments, there are alterations, permutations, and equivalents, which fall within the scope of this invention. It should also be noted that there are many alternative ways of implementing the methods and apparatuses of the present invention. It is therefore intended that the following appended claims be interpreted as including all such alterations, permutations, and equivalents as fall within the true spirit and scope of the present invention.

What is claimed is:

1. An electronic device, comprising:
 - a housing having an outer exposed surface with at least one hole extending therethrough, the housing at least partially covering an inner region;
 - a light source provided within the inner region and proximate to the at least one hole;
 - a light transmissive filler provided in the hole; and
 - light reflective material selectively and partially provided in or on the light transmissive filler.
2. An electronic device as recited in claim 1, wherein the light transmissive is a polymer filler, and wherein the polymer filler is substantially transparent.
3. An electronic device as recited in claim 2, wherein the polymer filler comprises a curable adhesive.
4. An electronic device as recited in claim 1, wherein the light reflective material comprises ink.
5. An electronic device as recited in claim 1, wherein the light reflective material comprises a plurality of layers of ink.
6. An electronic device as recited in claim 1, wherein the light reflective material comprises a plurality of micro dots of ink.
7. An electronic device as recited in claim 1, wherein the at least one hole has a diameter less than 3 millimeters.
8. An electronic device as recited in claim 1, wherein the electronic device is a handheld electronic device.
9. An electronic device as recited in claim 1, wherein the electronic device comprises:
 - a controller operatively coupled to the light source to control when the light source emits light.
10. An electronic device as recited in claim 1, wherein the light reflective material serves to reflect external light such that to an observer viewing the hole, the hole is substantially camouflaged relative to nearby portions of the outer exposed surface.
11. An electronic device as recited in claim 10, wherein the light transmissive filler comprises a transparent material, and wherein the transparent material comprises a polymer.

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12. An electronic device as recited in claim 11, wherein the polymer comprises a curable adhesive that is substantially transparent at least when cured.

13. An electronic device as recited in claim 11, wherein the polymer is substantially transparent.

14. An electronic device as recited in claim 10, wherein the light reflective material comprises ink.

15. An electronic device as recited in claim 10, wherein the light reflective material is selectively provided by printing micro dots of ink in or on the light transmissive filler provided in the hole.

16. An electronic device as recited in claim 10, wherein the light reflective material is selectively provided by printing micro dots of ink on the light transmissive filler provided in the hole.

17. An electronic device as recited in claim 10, wherein the light reflective material is selectively provided by depositing at least one layer of ink at select portions in or on the light transmissive filler provided in the hole.

18. An electronic device as recited in claim 10, wherein the selectively providing comprises:

depositing at least one layer of ink at select portions on the light transmissive filler provided in the hole.

19. A consumer electronic device, comprising:

a housing having an outer exposed surface with at least one hole extending therethrough, the housing at least partially covering an inner region;

a light source provided within the inner region and proximate to the at least one hole;

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a controller provided within the inner region and operatively coupled to the light source to control when the light source emits light;

a polymer filler provided in the hole; and

5 ink selectively provided in or on the polymer filler, wherein the ink is only partially in or on the polymer filler.

20. A consumer electronic device as recited in claim 19, wherein the polymer filler is substantially transparent, and wherein the ink is substantially opaque.

21. A consumer electronic device as recited in claim 19, wherein the ink serves to reflect external light such that to an observer viewing the at least one hole, the at least one hole is substantially camouflaged relative to nearby portions of the outer exposed surface.

22. A consumer electronic device as recited in claim 19, wherein the at least one hole has a diameter less than 3 millimeters.

23. An electronic device as recited in claim 1, wherein the outer exposed surface of the housing adjacent the hole is substantially flush with a top surface of the polymer filler with the ink material.

24. An electronic device as recited in claim 1, wherein the outer exposed surface of the housing adjacent the hole is substantially flush with a top surface of the light transmissive filler with the light reflective material.

* * * * *